

# *Model and Simulation Program*



**Dr. John C. Sessler**  
**Office of the Chief Architect/Engineer**  
**Ballistic Missile Defense Organization**



## BRIEFING PURPOSE

---

**This briefing provides an overview of the BMDO Modeling, Simulation, and Networks Efforts of BMDO.**

- ORGANIZATION
- MISSION
- RESPONSIBILITIES
- ACTIVITIES

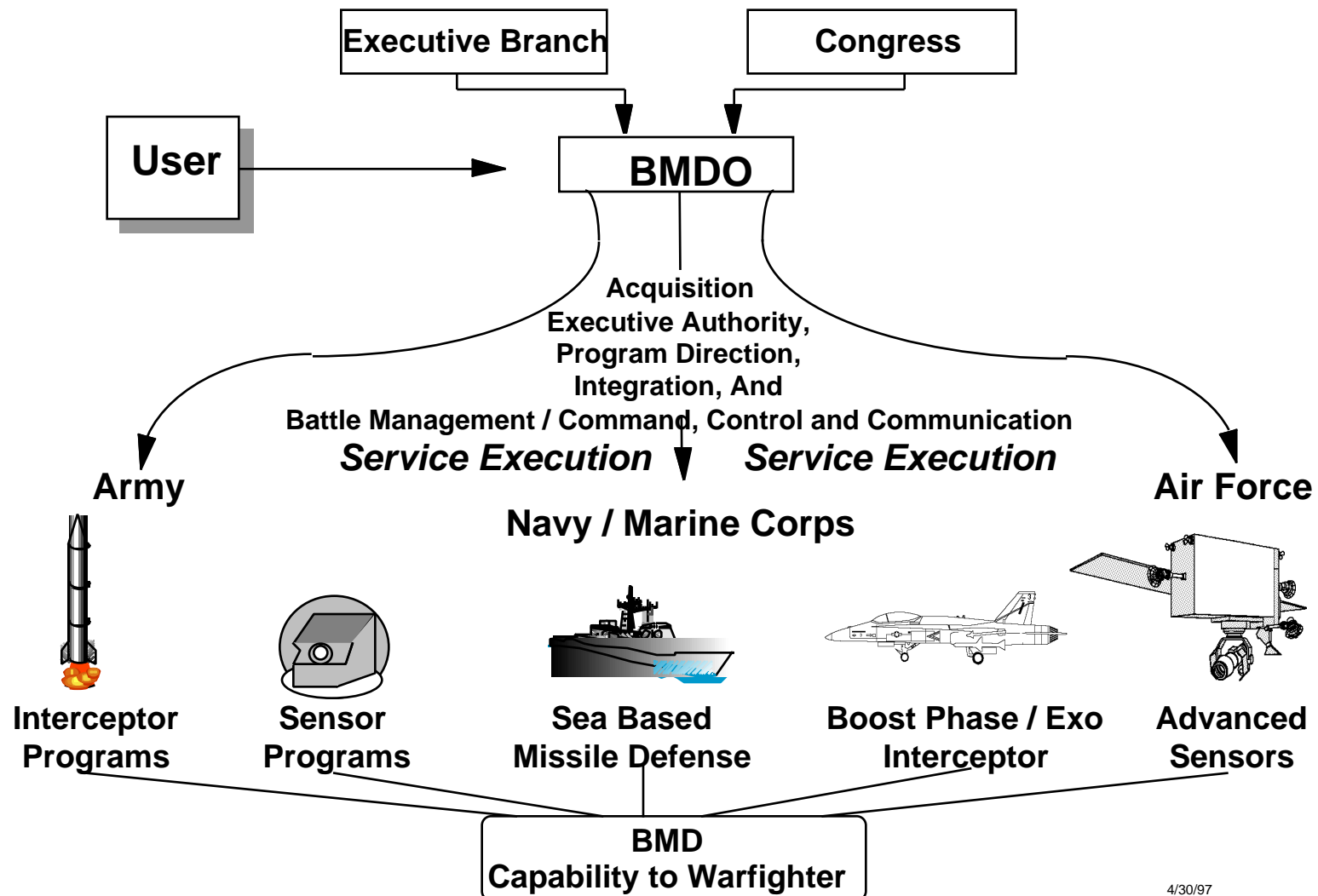


# BMDO ORGANIZATION

---



# BMD PROGRAM





## SHORT HISTORY OF BMDO MODEL AND SIMULATION MANAGEMENT

---

- Individual Shops [Consistent with the Strategic Defense Initiative Organization (SDIO) Technical Development Program]
- Analytic Tool Box Project [nee: Level Playing Field]
- AQM Established Central Oversight and Infrastructure Management
- TOM and DE Increased Integration Role and Central Management

***Central Tendency***



## JOINT NATIONAL TEST FACILITY

---

- **Provide Missile Defense Related Analysis, System Level Engineering, Integration and Test and Evaluation Support for the Development, Acquisition and Deployment of Missile Defense Systems and Architectures**
- **Support the Development of Joint and Combined Missile Defense Doctrine, Requirements, and Concept of Operations (CONOPS)**
- **Support Combatant Commands by Integrating Missile Defense Concepts, Space Asset Exploitation, Battle Management/ Command, Control, Communications, Computers and Intelligence (BM/C4I) and by Participating Joint and Combined Simulations, Wargames and Exercises.**



## **ADVANCED RESEARCH CENTER/ SIMULATION CENTER**

---

- **ARC/SC provides computational Test Bed resources for PEO-MD, BMDO, and USASSDC.**
  - **Test Bed engineering analysis and support for TMDSE, USASSDC simulation development and analysis, PEO-MD integration and test, and BMDO life cycle software engineering.**
  - **Engineering and operational support to PEO MD for demonstrations and experiments.**
- **Common use facilities and a baseline level of Infrastructure operations provided.**
- **Dedicated facilities / computational capabilities and services are funded by customers.**



## PRESENT ROLES

---

- **Tool Development and Integration [But Not All]**
- **Infrastructure Development and Management**
  - **STINFO Center**
  - **Information Technology Resources [ITR] Program**
- **Wargame Support**
- **External Interfaces**
  - **DMSO, International**
- **Support Internal BMDO M&S Development, Management, and Policy**

***Goal: Fully Supported, Coherent M&S Suite***





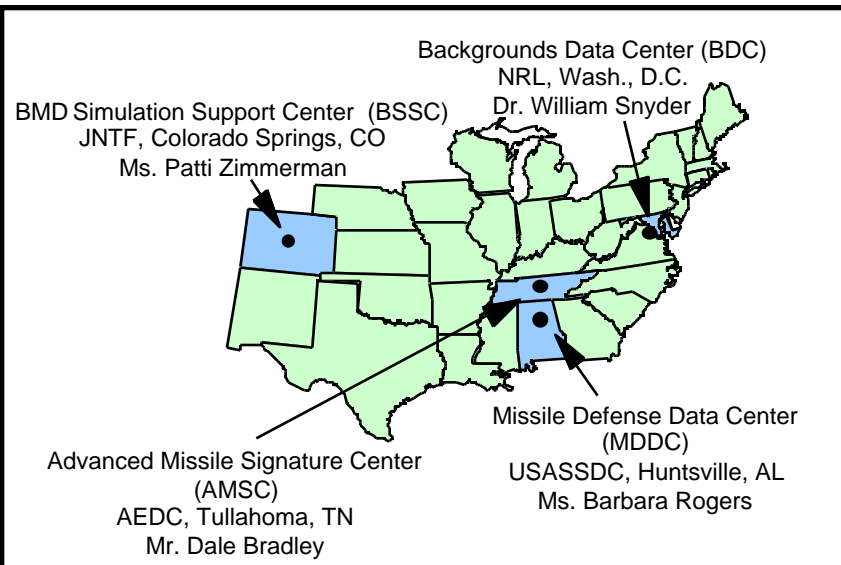
## **SIMULATION TOOL (ST) DEVELOPMENT AND INTEGRATION**

---

- **Priority Based on the Supported Acquisition Program**
  - Wargame 2000
  - EADTB
  - EADSIM
- **Focal Point for ST Development**
  - Responsible for
    - » Consolidation of Requirements
    - » Selection of Capability Needed
- **Leverage Existing Capabilities, Regardless of Source**
  - Cost Effective Development and Upgrade
  - Service/Program Office Buy-In
  - Reliance on HLA



# BMDO SIMULATION TOOL INFORMATION (STINFO) CENTER

 <p>Backgrounds Data Center (BDC) NRL, Wash., D.C. Dr. William Snyder</p> <p>BMD Simulation Support Center (BSSC) JNTF, Colorado Springs, CO Ms. Patti Zimmerman</p> <p>Advanced Missile Signature Center (AMSC) AEDC, Tullahoma, TN Mr. Dale Bradley</p> <p>Missile Defense Data Center (MDDC) USASSDC, Huntsville, AL Ms. Barbara Rogers</p>	<h2><u>MISSION OBJECTIVES</u></h2> <ul style="list-style-type: none"> <li>• Provide Science And Technical Information on a Timely Basis to BMDO Users Which Supports the Intended Use</li> <li>• Provide Data Management Services and Address Data Quality Issues (Data VV&amp;C)</li> <li>• Furnish Expert User Support (Tech. Support, Test PGM Interaction, Data Analysis Support)</li> <li>• Create and Maintain Science Databases to Support Test Planning, Analysis, M&amp;S, BMD Repository</li> </ul>
<h2><u>BACKGROUND</u></h2> <ul style="list-style-type: none"> <li>• Preserve BMDO Experiment/Test/M&amp;S Data (Cost to Collect &gt; Ten Billion Dollars)</li> <li>• BMDO Directive No. 3240 Provides Guidance Concerning BMDO STINFO Data Management</li> <li>• 44 U.S.C. 3102 &amp; 3301 Establish Agency Records Mgmt. Pgm. Including Test/Experiment Data</li> <li>• DOD/DISA 8320.1-M Series Provides Guidelines For Data Mgmt &amp; Data Quality</li> </ul>	<h2><u>FUNCTIONS</u></h2> <ul style="list-style-type: none"> <li>• Assist Test/Experiment Programs With Data Management Planning</li> <li>• Perform Repository Functions (Catalog, Archive, Access, And Distribute) For BMDO Test, BMC3, Experiment, And M&amp;S Data</li> <li>• Sites Serve As Centers Of Expertise In Areas Of Specialization</li> <li>• Support Analysis And Develop Data Products</li> <li>• Provide On-Site Data Review And Data Fusion</li> </ul>



## **BMDO INFORMATION TECHNOLOGY RESOURCE (ITR)**

---

- **TOM Manages the BMDO Information Technology Resource (ITR) Program**
  - **Develop Mission-Oriented ITR Policy Consistent with BMD and BMDO Mission**
  - **Plan and Manage Mission-Oriented ITR Program and Network Requirements Development**
  - **Develop Engineering Design for Mission-Oriented ITR Architecture**
  - **Interface with High performance Computing Program Modernization Office (HPCMO)**



## WARGAMING SUPPORT

---

- **Major emphasis on validating CONOPS by wargame participation of CINC Staffs.**
- **Tests various BMC3 Architectures.**
- **Supports CINC Assessments Program.**
- **Facilitates the fielding of a usable, effective capability.**
- **Includes International participants.**



## BMDO WARGAME 2000

---

- **Designed to Replace ARGUS as the Next Generation Simulation to Run Wargames at the JNTF for the Next Ten Years.**
- **Requirements Include:**
  - **General: Higher Capacity Framework; Distributed; Interoperable with Existing C4I; HLA Compliant; Support 6 to 8 Wargames Per Year.**
  - **Mode Operation: Wargames; Assessments; Familiarization; Architecture Analysis; and Test.**
  - **NMD CORE: All NMD Core Elements for Capability 1 and 2; the Real BMC3; Emulation of the NMD Threat and Operational Environment; Integration w/CMTS, Provide PSM-like Capability.**
  - **TAMD CORE: Specific Elements for Active Defense, Passive Defense; Attack Operations; C4I.**



## INTERFACES

---

- **External**
  - Provide Liaison to other M&S Organizations
    - » DMSO, HPCMO, etc.
  - International M&S Programs
- **Internal BMDO**
  - M&S Development
  - Management
  - Policy Implementation
  - Simulation Tool Advisory Board (STAB)
  - Simulation Tool Working Group (STWG)
  - Analysis and M&S Development



## SUMMARY

---

- **Central Management**
- **Specifically Manage Overall M&S Programs, STINFO Center and Mission-Oriented ITR Programs**
- **Ensure Availability of Needed Capabilities Driven by User Requirements**
- **Maintain MS&N Cognizance, Raise Issues, and Affect Solutions**
- **Provides Liaison to Other M&S Organizations**



## **BMDO - ITR APPROACH**

---

- **Determine Long Range (I.e., Five Year Strategic Plan) Air and Missile Defense Distributed Networking High Performance Computing Requirements and Develop Acquisition Plan**
- **Examine Feasibility of Concentrating Mission Common ITR into Hubbed Centers for More Effective Access by Customers**
- **Examine Effectiveness of Connecting BMDO STINFO Sites to Create a Virtual STINFO Center by Implementing and Evaluating a Prototype During FY97**
- **Evaluate Cost Effectiveness of Utilizing Existing Alternatives for ITR Architecture Implementation Such as Distributed Simulation Internet (DSI), Defense Research Engineering Network (DREN) and Defense Information Systems Agency (DISA) Capabilities**
- **Implement Effective and Supportive ITR Mission Oriented Architecture**